**Chapter 1**

**Networks**

**What is a network?**

1. **Describe the role of a network.**  A network connects computers/people together so they can share data/information and resources. A network connection allows computers/people to communicate with other devices/people. A network has its own operating system so it can manage the network traffic or conflicts (a conflict is when two devices send messages at the same time. Networks allow groups of people/students to work together or access documents easily and can access them anytime they want, rather than having to get copies from a teacher/supervisor.
2. **What is groupware software? Provide examples.** Groupware software allows people/users to see changes other people/uses have made and respond to them in real time.
3. **Describe the nature of social networking sites.** Social networking is a way in which people can communicate and stay in touch. An example of a social networking site is Facebook or Myspace.
4. **What is meant by real time?** Real time means that once something is uploaded on the internet u can respond instantly rather than having to send the file via the mail. This saves time, money and effort.

**Advantages of networks**

1. **Research Sharing**
2. **Internet Connection.**  On a network, everyone connected can access the network if it has an internet connection. Having the network connected to the internet saves time, money and resources. This is because everyone connected can access files, software and the internet.
3. **Printing.** Before 1990 you would have to save your file onto a floppy disk than walk over to the printer than load your file than print. This is a very old system which is inefficient to today’s standards. Due to networks we are able to print to any print that is connected to the print without all the trouble with saving, loading etc.
4. **Software.** Software companies now offer network licences that enable an organisation to have software on their network which allow employees to access it when needed.
5. **Other Resources.** Other resources can connect to the network via a computer these are called ‘Network-attached storage’ (NAS). These can be servers, fax machines, printers, network storage, etc.
6. **Remote Services**
7. **Describe how a B2B network operates.** A B2B (Business-2-Business) is when one business is directly connected to another businesses network. This is used when ordering stock, etc.
8. **What is an extranet?** The extranet is a private network that operates itself using internet protocols and the public telephone system. This enables businesses to communicate directly with suppliers, vendors, partners, etc.
9. **What are the advantages of a B2B situation?** An advantage of a B2B network is that it can reduce costs and improve the accuracy of the data of an organisation.
10. **Describe the nature of EFTPOS.** EFTPOS (Electronic funds transfer point of sale) is a device which someone can buy an item on, the transaction is debited to the customer’s bank card, this can only be done if the sales person has a EFTPOS machine on hand.
11. **Data and information sharing in organisation**
12. **Outline how data and information sharing occurs through networks and how this is an advantage.** When data is shared on a network it is more efficient and it is more accurate. In the large organisation, employees can access the data at any time that it is needed. Data is shared on a network by people accessing other peoples devices, therefore seeing and reading there data, this can only work if they have been granted access.
13. **What is meant by the process of synchronising data?** Synchronising data is the process in which people/employees make sure that the data is all the same and is up to date.
14. **How does this prevent data duplication?** This prevents two or more users having the same set of data and working on it at the same time. Therefore it saves time and effort.
15. **Facilitating communications**
16. **How do networks facilitate communications?** A network allows for easy communication with people that are either in the organisation or out of the organisation via the internet. Email, chat rooms, messaging, and videoconferencing are examples of communications within a network.

**Network Categories**

1. **Local Area Network, (LAN)**
2. **Describe the nature of a LAN.** A LAN (local area network) is a network which is located to a small geographical site, for example Wedderburn College; this can be with wireless, fibre optic, CAT-5.
3. **How has the advent of wireless technology changed the nature of the definition of a LAN?** The advent of the wireless technology is that now LAN is that it is not confound to a building, now you are able to take the computer out of the building.
4. **What is a Node?** A node is any device that is connected to the network, for example a computer, PDA, iPod, etc.
5. **How are LANs typically connected?** LAN is typically connected via CAT-5, but now majority of LANs are connected by wireless.
6. **Describe a wireless LAN.** A wireless LAN uses radio waves, satellite communications, and microwave or infra-red media to transmit signals between devices.
7. **Wide Area Network, (WAN)**
8. **Describe the nature of a WAN including the transmission media.** A WAN (Wide Area Network) is when two or more LANs are connected use telephone lines or someone else’s lines. The transmission media which is used are microwave, fibre-optic, telephone or satellites.
9. **List the different categories of WANs.** WANs can be put into four different categories. These are metropolitan area network that covers a single city, a state wide network that can cover an entire state, a national network, or a worldwide network, such as the internet.

**Network Architecture**

1. **What is meant by network architecture?** Network architecture is how a network is designed, how devices connect to the network. There are three categories of network architecture client-server, peer-peer (P2P) or internet peer-peer.
2. **Client-Server Network**
3. **Describe the nature of this type of network.** The nature of this network is to send/share/receive data from devices/clients on the network, this network has a client server which stores all of the data, and it allows only authorised clients to access this data. A client server is generally used in a school or business network.
4. **What is the role of a client?** The role of the client is to create, update and validate data which is on the client server.
5. **How does a server differ from an ordinary desktop computer?** A server is different because on a server you can access the data that is one the server from any computer that has access to the network. An ordinary desktop does not do this therefore if you save the data to the computer you can only access that data from that computer.
6. **Explain what is meant by multi-tasking?** Multi-tasking is software that enables a network or server to process two or more sets of instructions at the same time.
7. **Describe the nature of each of the following types of servers:**
8. **File server:** file servers act as a storage house for data and files, they store files for client computers.
9. **Print server:** print servers accept the data/files which need to be printed than sent them to the printer when it is ready.
10. **Database server:** a database server holds databases till the uses/client is ready than allows them to be used. Many organisations have these they are efficient and effective.
11. **Web server:** web servers connect to the internet and serve web pages to users/clients upon request. They hold files and photos in a read-only format so that many people can open copies of the files at any time.
12. **Domain name server (DNS):** domain servers translate domain names into IP addresses. Web browsers operating on the network request a DNS to provide the IP address so that it can than locate the required website or mail.
13. **Proxy server:** proxy servers keep a copy of all the recently accessed pages and files so that it can access them if requested again. These can also blocked web pages, for example Facebook is blocked by a proxy server at school.
14. **Backup server:** backup servers act as a fast backup storage spot for other devices/clients.
15. **DHCP server:** dynamic host configuration protocol (DHCP) servers, number each and every node that accesses the network, it than saves that nodes number for later use.
16. **Active directory domain controller server:** an AD DS stores directory data that manages communication between clients and the server.
17. **Virtual server:** could not find information on.
18. **Peer-2-Peer Network (P2P)**
19. **Describe the nature of the network.** A Peer-2-Peer network is usually used in a home environment, where there are few devices. The devices are connected to each other rather than being connected to a router or modem. A “peer” is someone on the same level as you. This means that a Peer-2-Peer is when you are connected to someone with the same level of authority as you. Client-servers are not Peer-2-Peer because the server has the right to share with everyone, but the clients are not allowed.
20. **What are the limitations of this network?**